Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Community pharmacists and communication in the time of COVID-19: Applying the health belief model

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ABSTRACT

The emergence of the novel coronavirus disease (COVID-19) pandemic presents an unprecedented health communications challenge. Healthcare providers should reinforce behaviors that limit the spread of the pandemic, including social distancing and remaining in the home whenever possible. Formal communications toolkits may not be prepared in a timely fashion. Community pharmacists can reinforce mitigation behaviors by applying the health belief model (HBM). This commentary provides an overview of the HBM and offers suggestions on how community pharmacists can use it as a guide to patient communication in these uncertain contexts.

Introduction

In late 2019, the World Health Organization was alerted to a cluster of pneumonia cases in Wuhan City in China; the novel coronavirus responsible for this outbreak was named 2019-nCOV,[1] and the disease the virus causes is now known as COVID-19 (coronavirus disease 2019).[2] The previously-unknown virus in question was later found to be highly transmissible, with the average infected person spreading the disease to up to 3 other people.[3]Initially reported case fatality rates ranged from 2.5% to 3%,[4,5] prompting a global response. Communities around the world have been advised to stay in their homes as much as possible, avoid gatherings, frequently wash their hands or employ other hand hygiene techniques, remain at least 1–2 m away from others ("social distancing"), and avoid touching their faces to avoid or delay transmission of 2019-nCOV.[1,2] These guidelines would severely hamper many day-to-day activities if implemented at a high level of fidelity, so voluntary compliance is likely to be uneven at best.

Healthcare professionals across all settings are now caring for and communicating with patients in a context of high uncertainty. The ultimate impact of the COVID-19 outbreak will not be clear for a long time, but greater adherence to the lifestyle modifications suggested by healthcare and public health organizations will greatly delay the spread of the disease. This, in turn, will keep hospitals and clinics from being overwhelmed. For example, hospitals are overburdened in parts of Italy, which is projected to have approximately 80% of its total ICU beds occupied by COVID-19 patients before April 2020.[6] As healthcare professionals with a high public availability, community pharmacists are likely to be many patients' first option for health information. Patients may present to community pharmacies for refills or new prescriptions; prescribers may cancel non-urgent appointments, which would make the community pharmacist a sole point of in-person contact with the healthcare system. It is therefore imperative that community pharmacists be equipped with knowledge and tools to communicate clearly and effectively with patients about ways to limit the impact of COVID-19.

As the situation continues to develop over days and weeks instead of months and years, community pharmacists are unlikely to have a ready-made and field-tested communication toolkit regarding COVID-19 until after the time to act has passed. In situations such as these, evidence-based public health frameworks can provide a useful temporary measure in much the same way that prescribers may rely on data from small, open label trials until data from higher-quality trials are available. These public health frameworks can act as a "checklist" that pharmacists and other healthcare professionals can use to guide their communication and reinforce healthy behaviors.

One such framework is the Health Belief Model (HBM). The HBM was originally developed to study why patients may not seek screening for tuberculosis,[7] and is one of the most prominent public health frameworks for understanding why individuals may or may not act in the face of a threat to personal or community health. The HBM has been used for decades to study vaccination, medication adherence, diabetes self-care, condom use, and other behaviors that require modification of

Abbreviations: 2019-nCOV, Novel coronavirus 2019; COVID-19, Coronavirus disease 2019; HBM, Health Belief Model

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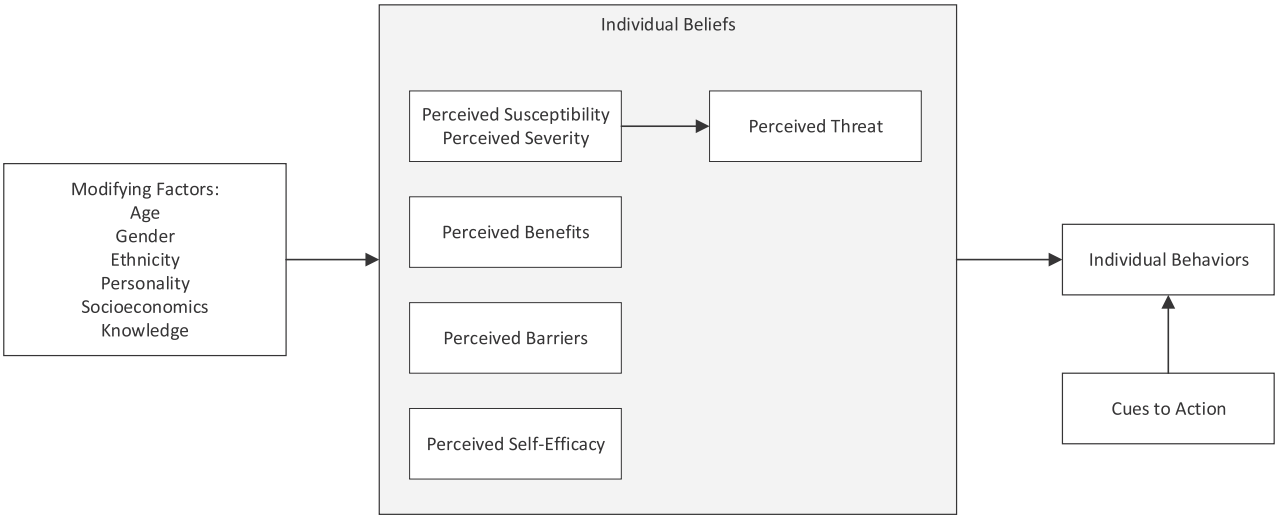

Fig. 1. The Health Belief Model.7.

a patient's actions to mitigate a threat to health.[8,9] Like many public health behavior models, the HBM studies behavior at an individual and community level by conceptualizing the determinants of behavior into several contributing factors called constructs. The HBM has evolved over time and many modified forms are present in literature; this article will operationalize the HBM as pictured in Fig. 1, adapted from Champion and Skinner.[7] Broadly, the HBM suggests that individual beliefs and direct cues to action inform behavior. In turn, beliefs are informed by one's background and are comprised of one's impression of the perceived threat, the perceived benefits to taking action, the perceived barriers to taking action, and one's perceived ability to take action (i.e., perceived self-efficacy). The purpose of this article is to explain how community pharmacist can use the constructs of the HBM as a communication guide to move patients toward behaviors that will limit the spread of COVID-19.

Applying the HBM to COVID-19 mitigation behaviors in community pharmacy patients

The constructs of the HBM can be applied to community pharmacy patients who may present with anxiety, uncertainty, skepticism, or apprehension regarding COVID-19 mitigation behaviors. These patients may contact the pharmacy specifically to request information on COVID-19, or may present for unrelated reasons and find that normal pharmacy operations have been disrupted. Suggestions on how to use individual constructs of the HBM are below, with examples of open-ended questions to illustrate how the constructs can be rapidly deployed. Note that a comprehensive application of the HBM would require incorporating as many of the constructs as possible in a structured way. This may or may not be possible in the period of time allotted to interactions between patients and community pharmacists. It may fall upon the pharmacist to exercise judgement in how to apply the HBM in time-limited contexts.

Modifying factors

All constructs of the HBM are underpinned by an individual's background and experiences. Thus, the community pharmacist should bear in mind the patient's demographic characteristics, socioeconomic status, and knowledge base. These things will interact directly with the constructs that comprise individual belief. In the United States, for example, persons of lower socioeconomic standing may not have access to all of the tools needed to overcome all perceived barriers to action. Persons of differing ethnic backgrounds may react differently to calls for social distancing due to varying cultural attitudes and norms regarding interpersonal interactions. An exhaustive list of how all modifying factors may interact with other HBM constructs in the context of COVID-19 is beyond the present scope, though some thoughts on modifying factors will be provided when discussing other constructs of the HBM. As community members themselves, community pharmacists are uniquely positioned to understand how these factors may impact their patients. Community pharmacists are encouraged to consider how their patients' perspectives on COVID-19 may differ from their own, and to modify communication strategies accordingly.

Perceived susceptibility, perceived severity, and perceived threat

Perceived threat and its predicates—perceived susceptibility and perceived severity—make the HBM well-suited to studying or modifying behaviors that may contribute to adverse health outcomes. In the HBM, an individual is considered more likely to take appropriate action if the perceived threat of the disease is large. In turn, the perceived threat will be larger if the perceived severity is larger—that is, the disease is regarded as a serious problem. Similarly, perceived threat will also be larger if perceived susceptibility is larger—that is, the adverse outcome is regarded as something the individual could reasonably experience.

When considering COVID-19 in the context of the HBM, community pharmacists may be poised to act most directly and most powerfully on these constructs. Educating the community on health risks is a core function of community pharmacy in most places, and community pharmacists are likely to be trusted members of their communities. Acting on these constructs may mean educating on individual- or community-level threats, incorporating patient-level modifying factors and epidemiological findings as appropriate. For example, early data strongly suggest that older patients with the disease are more likely to experience viral pneumonia, hospitalization, or other significant adverse health outcomes; the odds of death may be as high as 15% in patients over the age of 80.[4,5] Patients are also more likely to experience severe illness with COVID-19 if they have diabetes, COPD, or cardiovascular disease at baseline, or if they smoke or are male.[5]

Conversely, pharmacists must be careful to avoid implying that there is no threat to younger, healthier individuals. The Centers for Disease Control and Prevention estimates that 38% of COVID-19 hospitalizations may have occurred in patients under the age of 55.[10] It may be worthwhile to ask patients if they would tolerate a comparable chance of a similarly-negative avoidable outcome, such as an automobile accident that results in injury. Community-level threats may

also be salient to those at lower individual risk. If a younger individual is from a culture that places a high value on family or the elderly, the pharmacist may want to underscore the risks of transmitting the disease to family members or older community members. Again, the pharmacist could ask if the individual would drive recklessly with valued family members in their automobile, for instance.

Some discretion may be needed when interacting with members of the community who have anxiety disorders, obsessive-compulsive disorder, or other mental health concerns that may predispose to unhealthy fixation on the threat posed by COVID-19. When interacting with these individuals, community pharmacists may instead choose to leverage other constructs in the HBM to motivate behavior change without producing undue distress, such as perceived benefits and perceived self-efficacy. This may be an exception to previous guidance to deploy as many constructs of the HBM as possible.

Example questions to assess threat constructs:

- “How big of a problem do you think the coronavirus is?”
- “How serious do you think it would be if someone like you got the coronavirus?”
- “Why do you think someone like you might contract the coronavirus?”

Perceived benefits

In the HBM, perceived benefits are benefits that the individual may expect to accrue by undertaking the behavior in question. This is distinct from simply avoiding an adverse health outcome, which is covered by threat-related constructs. For example, a person who engages in smoking cessation behavior may avoid the perceived threat of chronic lung disease, but may also accumulate the perceived benefit of having more money due to decreased expenditures on tobacco.

In the case of the behaviors suggested in response to COVID-19, community pharmacists may struggle to identify perceived benefits without knowing the individual in question. However, as previously noted, personal relationships with community members are a unique strength of the community pharmacist. Perhaps patients who shift to a work-from-home paradigm will find they have more free time due to decreased commutes, for instance. More time at home may also mean more time with family members, which could be welcome. Conversely, it may also be an excellent opportunity to spend quality time alone, if that is perceived as valuable. Spending time away from crowds may present an opportunity to cultivate a hobby or habit, such as reading or hiking. As time permits, the community pharmacist may wish to explore the patient's perspective on benefits may come with spending more time at home.

Example questions to assess perceived benefits:

- “Are there any benefits to spending more time at home? What are those?”
- “Well, what are some of the things you haven't had time to do around the house?”
- “What hobbies haven't you had time for?”

Perceived barriers

Perceived barriers in the HBM are things that the individual feels may prevent them from making the desired behavior change. In general, as perceived barriers increase, the individual's likelihood to engage with the behavior decreases. Therefore, exploring ways to mitigate or remove perceived barriers will help individuals engage with the behavior in question.

In the case of COVID-19 prevention behaviors, perceived barriers are likely to be profound in many cases. Many cultures are not configured to operate with minimal contact outside of the home for extended periods. In most industrial and post-industrial economies, people will likely need income to afford housing, food, and other essentials. Because of population density, people living in urban areas may find it difficult to practice effective social distancing when they must leave their residences. Additionally, some individuals may find the psychological distress that comes with spending more time away from others or the fear of the disease to be a barrier in its own right. Other individual factors may present special barriers, such as having to find appropriate childcare following school closings. Many of these barriers may be beyond the capacity of a community pharmacist to resolve in a brief encounter, but the pharmacist should be willing to work with and appropriately reassure a concerned patient as time constraints allow.

Financial and vocational barriers are likely to be most profound with persons of lower socioeconomic status. Individuals who can work from home may be those whose jobs revolve around information technology in some way; those jobs may be higher-paying. Conversely, those in manufacturing or service sectors may find they suddenly have severely restricted income. These individuals may therefore aggressively pursue any work outside the home. Community pharmacists can help address these barriers when they arise by supplying contact information for local governmental and nongovernmental organizations that may provide support for people who are experiencing economic distress. These resources may include social workers, local government aid agencies, or even food pantries.

Example questions to assess perceived barriers:

- “How difficult do you think it will be to stay at home unless you have to leave?”
- “What might keep you from staying home?”
- “I know some people are having trouble paying bills right now. Would you like information on community resources for you or people you know?”

Perceived self-efficacy

Perceived self-efficacy is the belief that one has the ability to overcome a given challenge. Note that perceived self-efficacy is distinct from actual self-efficacy; if one does not actually possess the ability to overcome a challenge, then perceived barriers are likely to be present. Instead, perceived self-efficacy focuses on whether an individual feels empowered to pursue tactics that are likely to result in success. Many times, perceived self-efficacy is essential: one does not finish what one does not start, and one does not start what one feels they can not finish.

Community pharmacists can help patients who express difficulties with perceived self-efficacy with respect to COVID-19 prevention behaviors. This may be as simple as listening to concerns regarding isolation and social distancing, then reinforcing positive steps that have already been taken. Pharmacies can reinforce self-efficacy beliefs by working with patients who experiment with mail order refills, drive-through pharmacy, or other contact-minimization methods. These measures can be presented to patients as proof of their ability to take effective action. Ultimately, it will be vital to understand the individual and their contexts. The preexisting relationships community pharmacists have with their patient populations will again be invaluable.

Example questions to assess perceived self-efficacy:

- “How likely is it that you can take action to distance yourself from others?”
- “How overwhelming is the idea of coronavirus?”
- “How confident do you feel about the future right now?”

Cues to action

In the HBM, “cues to action” are prompts that remind individuals that they should act on a particular challenge. This is another construct that community pharmacists are likely to act on in the course of

everyday practice. In the past, this may have meant reminding patients of medication adherence behaviors or counseling on smoking cessation. In the context of COVID-19 prevention behaviors, it may mean reminding patients standing in line to practice social distancing or advising patients who exhibit symptoms of COVID-19 to quarantine themselves for the length of time suggested by their doctor. Community pharmacists should take care to practice cultural competence when providing guidance: some communities and individuals will want their healthcare professionals to be cooperative and consultative, while others may prefer simple, clear directions from an expert.

Discussion

COVID-19 presents a unique challenge to public health. Effective mitigation of the disease will require nontrivial efforts from a significant fraction of the world population, including social distancing and avoiding unnecessary interactions with others. No matter how stringently these measures are recommended, a fraction of people may not believe that they can or should act in ways that will limit the threat. The HBM is a model that has been used to study behaviors related to preventing or mitigating disease. It conceptualizes beliefs about disease as being comprised of the perception of the threat as severe and relevant, the perception of benefits of and barriers to acting, and the perception of one's intrinsic ability to act. As trusted, community-facing healthcare professionals, pharmacists are uniquely suited to bring about change in patient behaviors. Community pharmacists using HBM to reinforce COVID-19 mitigation behaviors should appropriately emphasize the severity and susceptibility of the threat, emphasize barriers to acting, help patients identify ways to overcome barriers to acting, and reinforce self-efficacy beliefs.

Public health frameworks such as HBM are not entirely foreign to pharmacy as a profession. The transtheoretical “states of change” model has been used in the context of smoking cessation.[11] While the profession is likely less aware of other frameworks, such as HBM, there is reason to believe that pharmacists can deploy tools like HBM effectively. Ideally, such a deployment would be accompanied by strong assessment tools; however, the speed with which the COVID-19 situation is evolving necessitates a less evidence-based approach than might otherwise be used.

Limitations of the HBM must be acknowledged. Unlike some other public health frameworks, it does not directly incorporate constructs such as social norms and community assumptions, which are instead “baked in” at the level of underlying demographic factors. It is also unclear if the HBM applies directly to an effort as large as the ones being mobilized to combat COVID-19. However, this critique could be levied at most approaches that might be brought to bear on this unique situation.

Conclusion

Community pharmacists are likely to have a direct role in combating misinformation and helping patients select healthy behaviors. To that end, the HBM's constructs of perceived threat, perceived barriers, perceived benefits, perceived self-efficacy, and cues to action can be immediately deployed to help reinforce COVID-19 limiting behaviors, such as social distancing and remaining in the home whenever possible.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.sapharm.2020.03.017.

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